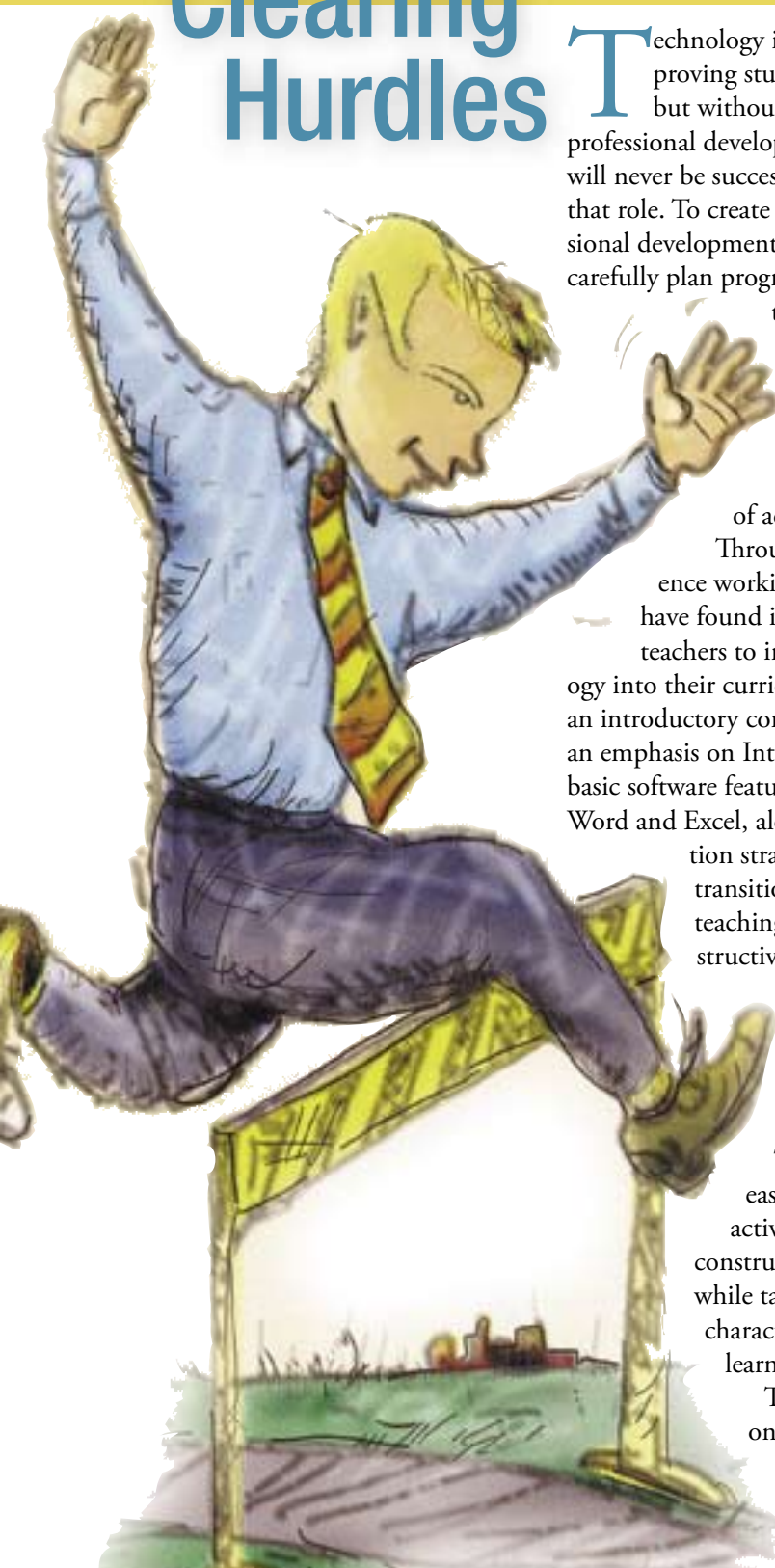


Clearing Hurdles



Technology is the key to improving student achievement, but without high-quality professional development, technology will never be successful in fulfilling that role. To create successful professional development, it is necessary to carefully plan programs and activities that model constructivism and take into consideration characteristics of adult learners.

Through my experience working with teachers, I have found it is hard for many teachers to integrate technology into their curriculum. I teach an introductory computer class with an emphasis on Internet resources, basic software features of Microsoft Word and Excel, along with integration strategies. Making the transition from traditional teaching to a more constructivist style that integrates technology can be very intimidating. It is a hurdle that is difficult to jump.

To help teachers ease into it, I use an activity that models a constructivist approach, while taking into account characteristics of adult learners.

The activity is based on using tasks teachers already do and are comfortable

with and adding a technology component. My idea for this activity came from an article by Doug Johnson titled "The Upgrade: Ten Activities for Easing into Technology Integration," published in the Michigan Association for Computer Users in Learning (MACUL) Newsletter, September 2000. That article lists activities many teachers use in teaching, along with ideas of how to add technology and the benefits to the learners of doing so. Instead of simply giving teachers this information, I decided it would be more beneficial for them to come up with their own lists and potential benefits. Adult learning theory contends that adults have more success with learning if they are actively involved in the learning process. Adult learners also have a need to feel that their learning experience is valuable. By having teachers list the student benefits along with the technology to be added, teachers would be able to see how this activity will help prepare them to help their students. This activity also encourages creativity, another component of successful adult learning environments, as teachers come up with new ways to add technology to current classroom activities.

I created a Technology Integration Ideas Template in Excel for this activity (see it on page 32). Column A lists current activities common to all teachers. This list was taken from the MACUL article. After the teachers have completed some reading related to technology integration and been given some instruction on Word,

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Technology Integration Ideas Template

Current Activity	Adding Technology	Student Benefits
Teacher lecture	Computer presentation program (PowerPoint). Video clips. Video streaming.	Computer presentation programs are easier for students to follow along and take notes. Computer presentation programs, video clips, and video streaming add visual and auditory components that address different learning styles of students.
Student writing	Word processing. Desktop publishing. Concept mapping software (Inspiration, Kidspiration). Posting student writing on Internet.	Easily edited through use of spelling and grammar checkers. Added illustrations or graphics help clarify content. By posting student writing on the Internet, online peer review and commentary can be added. Helps students with dyslexia (difficulty with handwriting).
Student research	Online resources. CD-ROM encyclopedias. E-mail primary sources.	Quickly accessed. Sounds and pictures can be used in multimedia reports. Up-to-date information. Notes can be copied and pasted into rough draft.
Book reports	Word processing. Database with fields for title, author, publisher, date, genre, summary, and recommendation. Internet for author information. Accelerated Reader Software.	Word processing allows students to produce professional-looking reports that motivate students. Use of a database allows students to share information. Accelerated Reader motivates students to read and has score keeping.
Math problems	Use spreadsheets to set up basic math story problems. Use calculator. Drill and practice software.	Spreadsheets allow formulas and operations to be clearly visible and allow students to create data tables and graphs. Spreadsheets allow data to be converted from original surveys into understandable information. Calculators help students save time and allow them to focus on problems. Drill and practice software provides practice on basic skills and instant feedback.
Plays, skits, or debates	Videotape presentations. Internet public domain plays (Shakespeare, etc.). Word processing to enlarge print.	Videotaping allows students to watch playback on TV to evaluate and to share with parents or others in the community. Videotaping allows for editing. Use of public domain plays provide teachers/students with high-quality resources. Making use of word processing to enlarge print helps students remember and practice their lines.
Student-created time lines	Use draw program. Draw tools in Microsoft Word. Use Timeliner or Inspiration/Kidspiration software to create time lines.	Computer-generated time lines are quick and easy to read. Graphics help clarify and reinforce information. Easily modified.
Student speeches, demonstrations, or lessons	Videotape. Use presentation software (PowerPoint).	Videotaped presentation can be analyzed at a later date. Graphics, sounds, movies, and pictures can be used to help illustrate concepts. Presentations appeal to the audience and can be shared on the Internet.
Drawings to illustrate concepts or accompany writing	Scanner. Draw program (Kidspiration, Kid Pix). Draw tools within Microsoft Word.	Scanners allow students to digitize hand-drawn pictures to incorporate within word processing documents. Draw programs allow students to create original artwork to illustrate ideas and concepts.
Recommended readings	Internet to access articles and books online. Books on tape.	Easy access from home or library. Audio can help students who struggle with reading.

Excel, and use of the Internet, they are divided into groups of three according to the grade level or subject they teach. Next, they are given the task of adding one or more technology components to each activity and describing the student benefits. This approach follows the social constructivist style of teaching. Based on their knowledge of the software, knowledge obtained from the readings, and the experiences of the group, teachers are adding to their knowledge base through the social interaction in their small groups. Through the process of adding to their template, they construct new ways to incorporate technology into their current activities. Additionally, the student benefits column serves to help motivate the teachers. When they see that adding technology is an advantage for their students, they are more eager to give it a try.

Each group is responsible for turning in one completed template. After everyone is finished, we all come together and discuss the templates. Teachers revise their files and print a copy for each member of their group. I have done this activity several times with different classes, and each time I am amazed at the creative integration ideas of teachers.

Several teachers have shared their subsequent experiences incorporating some of these ideas. One teacher had her fourth grade special needs student use Word to type a final copy of a story he wrote. She commented how proud he was of his success and his final grade. This teacher also told how use of the spelling and grammar checkers helped some of her special needs students with their writing. Students could easily recognize when

a word was misspelled or there was a grammatical error, because Word automatically put a red or green line underneath it. Right-clicking on the word enabled students to easily make the necessary corrections. This same teacher also found that students who were having difficulty with fractions benefited when they used an Excel spreadsheet to enter fractional parts. Creating a chart helped them to clearly see the proportions. She used this in conjunction with a worksheet where the students were given values from which to determine the remaining proportions.

Another teacher commented on the benefits of using the Timeliner program with her fourth grade students. Her students were easily able to organize dates and events pertaining to a state they were researching and reporting on.

The technology integration activity is used as part of a graduate class for teachers, but it could be adapted for an after-school training workshop. Instead of focusing on all of the current activities that are listed in Column A, the instructor could focus on one or two areas. However it is used, as a whole or in part, it will serve to help teachers jump the hurdle and move toward making use of technology in their classroom activities.



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